

N-CHANNEL J-FET

Qualified per MIL-PRF-19500/385

Devices

2N4856 2N4857 2N4858 2N4859 2N4860 2N4861
 2N4856UB 2N4857UB 2N4858UB 2N4859UB 2N4860UB 2N4861UB

Qualified
Level

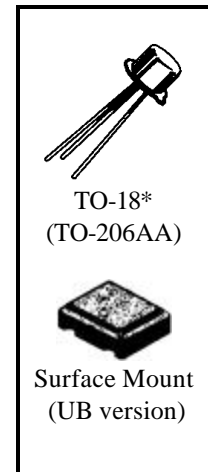
JAN
JANTX
JANTXV

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^{\circ}\text{C}$ unless otherwise noted)

| Parameters / Test Conditions | Symbol | 2N4856 | 2N4859 | Unit |
|--|----------------|-----------------------------------|------------------|--------------------|
| | | 2N4857 2N4858 | 2N4860 2N4861 | |
| Gate-Source Voltage | V_{GS} | -40 | -30 | V |
| Drain-Source Voltage | V_{DS} | 40 | 30 | V |
| Drain-Gate Voltage | V_{DG} | 40 | 30 | V |
| Gate Current | I_G | 50 | | mA |
| Power Dissipation | P_T | $T_A = +25^{\circ}\text{C}^{(1)}$ | 0.36 | W |
| | | $T_C = +25^{\circ}\text{C}^{(2)}$ | 1.8 | W |
| Operating Junction & Storage Temperature Range | T_j, T_{stg} | -65 to +200 | | $^{\circ}\text{C}$ |

(1) Derate linearly 2.06 mW/ $^{\circ}\text{C}$ for $T_A > 25^{\circ}\text{C}$.

(2) Derate linearly 10.3 mW/ $^{\circ}\text{C}$ for $T_C > 25^{\circ}\text{C}$.



*See appendix A
for package
outline

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}\text{C}$ unless otherwise noted)

| Parameters / Test Conditions | Symbol | Min. | Max. | Units |
|---|---------------|------|-------|----------------|
| Gate-Source Breakdown Voltage $V_{DS} = 0, I_G = 1.0 \mu\text{A dc}$ | $V_{(BR)GSS}$ | -40 | -30 | Vdc |
| 2N4856, 2N4857, 2N4858 2N4859, 2N4860, 2N4861 | | | | |
| Gate-Source "Off" State Voltage $V_{DS} = 15 \text{ Vdc}, I_D = 0.5 \eta\text{A dc}$ | $V_{GS(on)}$ | -4.0 | -10 | Vdc |
| 2N4856, 2N4859 | | -2.0 | -6.0 | |
| 2N4857, 2N4860 2N4858, 2N4861 | | -0.8 | -4.0 | |
| Gate Reverse Current $V_{DS} = 0, V_{GS} = -20 \text{ Vdc}$ | I_{GSS} | | -0.25 | ηA |
| $V_{DS} = 0, V_{GS} = -15 \text{ Vdc}$ | | | | |
| Drain Current $V_{GS} = -10 \text{ Vds}, V_{DS} = 15 \text{ Vdc}$ | $I_{D(off)}$ | | 0.25 | ηA |

2N4856, 2N4857, 2N4858, 2N4859, 2N4860, 2N24861 JAN SERIES

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}\text{C}$ unless otherwise noted) (con't)

| Parameters / Test Conditions | | Symbol | Min. | Max. | Units |
|--|--|--|-----------------|----------------------|----------------|
| Drain Current $V_{GS} = 0, V_{DS} = 15 \text{ Vdc}$ | 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | I_{DSS} | 50 20 8.0 | 175 100 80 | mA |
| Static Drain - Source "On" State Resistance $V_{GS} = 0, I_D = 1.0 \text{ mAdc}$ | 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | $r_{ds(on)}$ | | 25 40 60 | Ω |
| Drain-Source "On" State Voltage $V_{GS} = 0, I_D = 20 \text{ mAdc}$ $V_{GS} = 0, I_D = 10 \text{ mAdc}$ $V_{GS} = 0, I_D = 5.0 \text{ mAdc}$ | 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | $V_{DS(on)}$ | | 0.75 0.50 0.50 | Vdc |
| Small-Signal, Common-Source Reverse Transfer Capacitance $V_{GS} = -10 \text{ Vdc}, V_{DS} = 0, f = 1.0 \text{ MHz}$ $C_1 = 0.1 \mu\text{F}, L_1 = L_2 \geq 500 \mu\text{H}$ | | C_{rss} | | 8.0 | pF |
| Small-Signal, Common-Source Short-Circuit Input Capacitance $V_{GS} = -10 \text{ Vdc}, V_{DS} = 0, f = 1.0 \text{ MHz}$ $C_1 = 0.1 \mu\text{F}, C_2 = 20.1 \text{ m}$ $FL_1 = L_2 \geq 500 \mu\text{H}$ | | C_{iss} | | 18 | pF |
| Turn-On Delay Time | 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | See Figure 3 of MIL-PRF- 19500/385 | t_{don} | 6 6 10 | ηs |
| Rise Time | 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | | t_r | 3 4 10 | ηs |
| Turn-Off Delay Time | 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | | t_{doff} | 25 50 100 | ηs |